Sample Paper

FOUNDATIONS

Aakash
Medical | IIT-JEE | Foundations

Aakash
NATIONAL
TALENT HUNT EXAM
ANTHE
—2024—
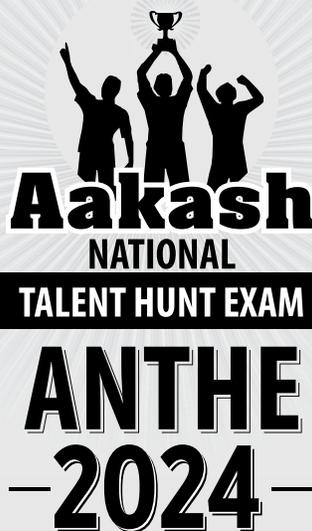
(Class VIII Studying Moving to Class IX)

Science, Mathematics & Mental Ability

INSTRUCTIONS FOR CANDIDATE

1. Duration of Test is 1 hr.

2. The Test Booklet consists of **40** questions. The maximum marks are **90.** There is **no negative marking** for wrong answer.

3. Pattern of the questions are as under:

    (i) The question paper consists of three parts *i.e.*, **Science**, **Mathematics** and **Mental Ability**. Each part has **two sections.**

    (ii) **Section-I:** This section contains **35** multiple choice questions, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.

    (iii) **Section-II:** This section contains **5** multiple choice questions, in which **one or more than one** choice(s) is(are) correct. Each question carries **+4 marks** for correct answer.

Aakash National Talent Hunt Exam 2024
Sample Paper
(*Class VIII Studying Moving to Class IX*)

(The questions given in sample paper are indicative of the level and pattern of questions that will be asked in ANTHE-2024)

**Time : 1 Hour**   **SCIENCE**   **MM : 90**

SECTION-I : SINGLE CORRECT ANSWER TYPE

This section contains 18 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

1. Which of the following frequencies of sound is inaudible for human ear?

   (1) 25 Hz   (2) 2000 Hz

   (3) 10 Hz   (4) 1500 Hz

2. A body will experience the minimum fluid friction when it moves with speed of _____ with respect to the fluid.

   (1) 5 m/s   (2) 10 m/s

   (3) 15 m/s   (4) 20 m/s

3. Which of the followings when mixed with distilled water makes it conductor of electricity?

   (1) Acids only   (2) Bases only

   (3) Salts only   (4) All of these

4. A block of mass *m* is kept at rest on three different planes as shown in the figures. Which of the following options shows the correct direction of frictional force (*f*) acting on the block?
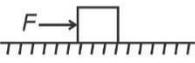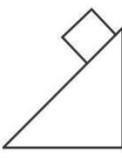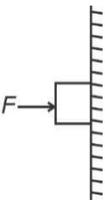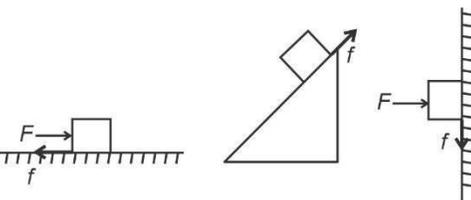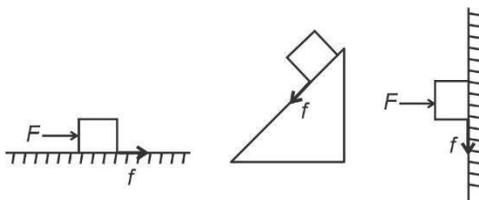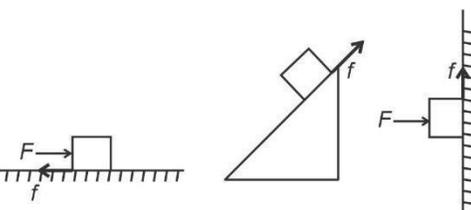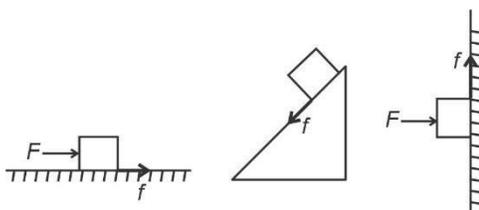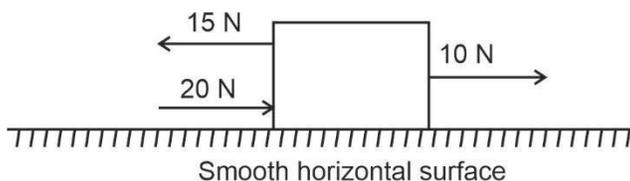

   (1)   (2)

   (3)   (4)

5. A simple pendulum is oscillating with frequency of 10 Hz. The pendulum completes 225 oscillations in

(1) 15 s

(2) 20.5 s

(3) 15.5 s

(4) 22.5 s

6. A body is subjected to number of forces acting on it as shown in the figure. The net force acting on the body is

Smooth horizontal surface

(1) 15 N   (2) 25 N

(3) 45 N   (4) 5 N

7. The process of conversion of dead vegetation into coal is called

(1) Conservation   (2) Carbonisation

(3) Ignition   (4) Combustion

8. Which of the following is not true about CNG?

(1) It is stored under high pressure

(2) It is less polluting than petrol

(3) It is a cleaner fuel

(4) It is not a fossil fuel

9. Which of the following properties does not describe coal tar?

(1) It is a black and thick liquid with unpleasant smell

(2) It is a mixture of about 200 substances

(3) Naphthalene balls are obtained from coal tar

(4) It is used in the manufacturing of steel

10. In the Sun, heat and light are produced by

(1) Combustion of coke   (2) Combustion of sulphur

(3) Nuclear reactions   (4) Explosion

11. Which of the following statements is(are) correct?

(a) Paper is combustible substance but wood is non-combustible substance

(b) Iron nail is non-combustible substance but paper is combustible substance

(c) Kerosene oil is combustible substance but stone is non-combustible substance

(d) Glass is non-combustible substance but charcoal is combustible substance

(1) Only (a)

(2) (a) and (d) only

(3) (b), (c) and (d)

(4) (a), (b) and (d)

12. In the petroleum and natural gas deposits, layer of 'X' is present at the top while 'Y' is present at the bottom. In between layer of 'X' and 'Y', 'Z' is present. 'X', 'Y' and 'Z' respectively are

(1) Water, oil and gas
(2) Gas, water and oil
(3) Oil, gas and water
(4) Gas, oil and water

13. Combine is used for

(1) Winnowing only
(2) Both harvesting and threshing
(3) Harvesting only
(4) Weeding only

14. Which of the following is a weedicide?

(1) NPK
(2) Ammonium sulphate
(3) 2, 4-D
(4) Potash

15. Chicken pox is caused by a

(1) Bacterium
(2) Protozoan
(3) Virus
(4) Fungus

16. Consider the given table.

Diseases	Their causative microorganisms	Their modes of transmission
Rust of wheat	Fungus	'A'
Hepatitis A	'B'	Water

Identify 'A' and 'B' in the above given table and choose the correct option.

	'A'	'B'
(1)	Air	Bacterium
(2)	Insect	Protozoan
(3)	Seed	Virus
(4)	Air	Fungus

17. **Statement-I:** Cheetal, leopard and wild dog are examples of the flora of the Pachmarhi Biosphere Reserve.

Statement-II: Arjun, jamun and teak are examples of the fauna of the Pachmarhi Biosphere Reserve.

After interchanging the underlined words,

(1) Only statement-I will become correct
(2) Only statement-II will become correct
(3) Both the statements will become incorrect
(4) Both the statements will become correct

18. Red Data Book

(a) Keeps a record of all the endangered animals only.
(b) Is maintained internationally by an organisation.

Select the correct option.

(1) Only (a) is true
(2) Both (a) and (b) are false
(3) Only (b) is true
(4) Both (a) and (b) are true

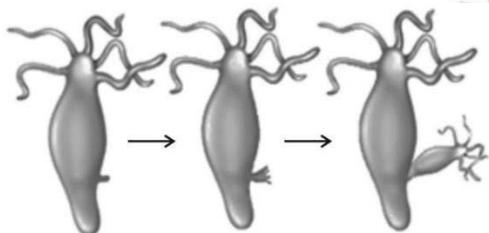**SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE**

This section contains 3 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

19. A bob of a simple pendulum released from extreme position A reaches to position B in 0.2 s and reaches from position B to mean position O via another extreme position C in 0.7 s. Then
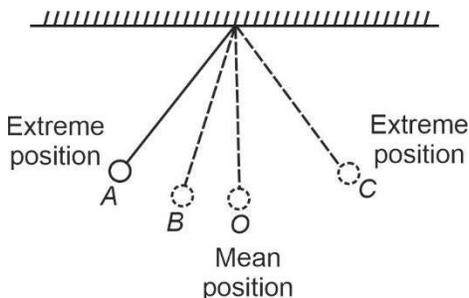
(1) Time period of the pendulum is 1.2 s

(2) It oscillates 350 times in 7 min

(3) It oscillates 350 times in 5 min

(4) Time taken by the bob to reach from mean position O to position B is 0.1 s

20. Two students make paper cups 'A' and 'B' by folding sheets of paper and added some amount of water and kerosene oil respectively to them. Then, they heated both the paper cups with candles separately. On the basis of their observation, choose the correct option(s).

(1) Both paper cups catch fire with flame at the same time

(2) Heat supplied to the paper cup 'A' is transferred to water by conduction

(3) The paper cup 'B' burns with a flame as kerosene oil has very low ignition temperature

(4) Paper cup 'A' easily achieves its ignition temperature in the presence of water

21.

Select the **incorrect** statement(s) regarding the process depicted in the above given figure.

(1) It is also observed in yeast

(2) It splits the parent body into two identical daughter individuals

(3) It is a means of reproduction in *Amoeba* also

(4) It produces one or more bulges that develop into new individuals

MATHEMATICS

SECTION-I : SINGLE CORRECT ANSWER TYPE

This section contains 10 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

22. In toss of a coin, if probability of getting a "head" is $\dfrac{1}{2}$ then probability of getting a "tail" will be

    (1)   1

    (2) $\dfrac{1}{3}$

    (3) $\dfrac{1}{2}$

    (4) $\dfrac{2}{3}$

23. If $\dfrac{m}{3} + \dfrac{m}{2} = \dfrac{m}{6} - 2$ then m is equal to

    (1)   3   (2)   2

    (3)   −2   (4)   −3

24. As shown in the given figure, *ABCD* is quadrilateral then measure of $\angle ABC$ equals
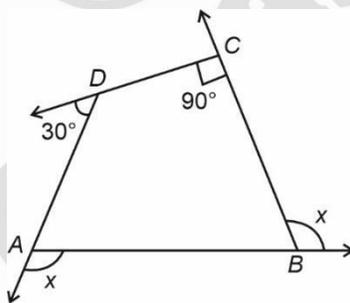
    (1)   120°   (2)   90°

    (3)   30°   (4)   60°

25. The value of $-\dfrac{4}{3} \div \dfrac{3}{2}$ is

    (1) $-\dfrac{2}{3}$ (2) $-\dfrac{4}{3}$

    (3) $-\dfrac{8}{9}$ (4)   3

26. Which of the following numbers is not a perfect cube?

    (1)   1728

    (2)   512

    (3)   216

    (4)   225

27. In how much time will ₹8000 amount to ₹9261 at 5% per annum compound interest compounded annually?
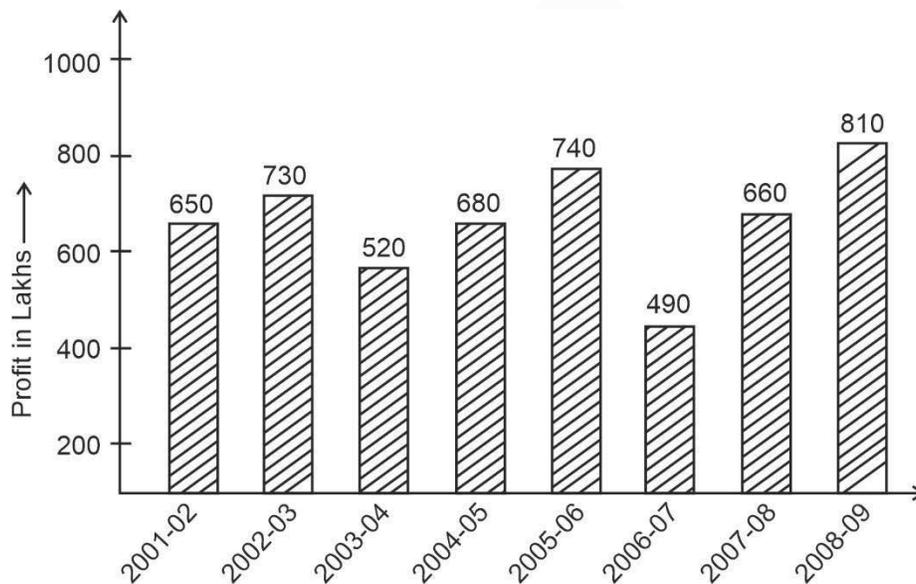
    (1)   2 years

    (2)   3 years

    (3) $2\dfrac{1}{2}$ years

    (4)   4 years

28. In parallelogram *ABCD*, if *AC* = 10 units and *BD* = 2*AC* − 10 units then *ABCD* is a

    (1)   Kite   (2)   Rhombus

    (3)   Rectangle   (4)   Square

29. The given bar graph shows the profit (in ₹ lakhs) made by an IT company TCS from the year 2001-2002 to 2008-2009.

The ratio of the number of years in which the company's profit is above the average profit, to those in which the profit is below the average profit is

    (1)   5 : 3   (2)   4 : 3

    (3)   3 : 5   (4)   3 : 4

30. If $4\left[13^2 - 7^2\right] = \left(2^3 \times 3 \times 5\right)(13 + 7p)$, then $\sqrt{18 - 14p}$ equals

    (1)   0   (2)   4

    (3)   7   (4)   6

31. If $a \div b = b \div a$, where *a* and *b* are rational numbers, then which of the following is incorrect?

    (1)   *a* + *b* = 0

    (2)   *a* − *b* = 0

    (3)   *ab* = 1

    (4) $\dfrac{a}{b} = 0$

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

32. *AEGC* is a parallelogram whose diagonals *AG* and *CE* intersect at *B*. Points *D* and *F* lie exterior of *AEGC* such that *ABCD* and *BEFG* are also parallelograms. Points *H*, *I*, *J* and *K* lie on sides *AB*, *BC*, *BE* and *BG* respectively such that $DH \perp AB$, $FK \perp BG$, $DI \perp BC$ and $FJ \perp BE$. If $\angle HDI = 50°$, $DI = JF$ and $DH = FK$, then the correct option(s) is(are)

    (1) $\angle IDC + \angle KFG = 80°$

    (2) *DJFI* and *HFKD* are parallelograms

    (3) $BJ + BD = BC + BF$

    (4) Sum of complements of $\angle EFJ$ and $\angle ADH = 100°$

MENTAL ABILITY

SECTION-I : SINGLE CORRECT ANSWER TYPE

This section contains 7 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

33. Find the next term in the following series.

    25, 49, 121, 169, 289, ?

    (1) 361   (2) 441

    (3) 625   (4) 529

34. Choose the correct option in place of (?) which has the same relation with figure (C) as figure (A) and figure (B) have.
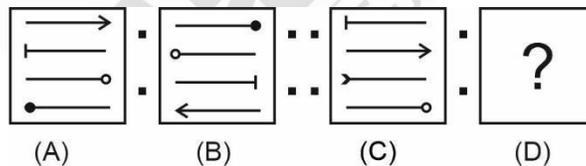
35. Choose the correct mirror image of following figure.

(1)

(2)

(3)

(4)
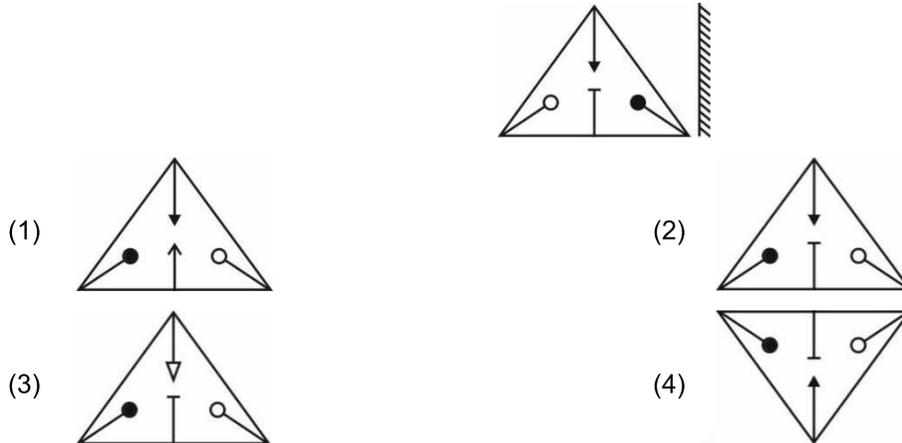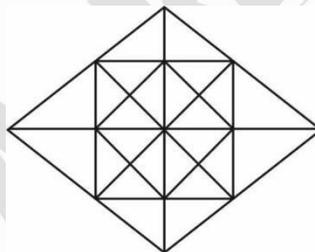
36. A sequence of some letters and symbols is given as follows.

A B # ∗ P Q O ? M N P J B A C K ∗ V # N O P J S K V S

How many vowels are there which are immediately preceded by a consonant and immediately followed by a symbol?

(1) One

(2) Two

(3) Three

(4) Four

37. Count the total number of straight lines in the given figure.

(1) 14

(2) 20

(3) 18

(4) 16

38. If 'MADAM' is coded as 103 and 'RANDOM' is coded as 97, then 'FOLDING' is coded as

(1) 93

(2) 126

(3) 122

(4) 110

39. Early in the morning Arun and Bablu were talking to each other face to face. If Arun's shadow is falling towards the left of Bablu. So, in which direction is Bablu facing?

(1) East

(2) South

(3) North

(4) Cannot be determined

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

40. Choose the correct option(s) in place of (?).

    2345 : 26 : : 7289 : 86 : : 5964 : 69 : : ?

    (1) 9864 : 100   (2) 3785 : 60

    (3) 4488 : 80   (4) 3659 : 63

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